

Claims

WHAT IS CLAIMED IS:

1. Apparatus for recognizing a string of characters of hand written text in an image loaded in a computing system, the apparatus comprising:

holistic recognition means for recognizing the string of characters as a whole and generating a first answer list and a segmentation list, the first answer list containing a plurality of recognition answers for the string of characters in the image each answer having a confidence value that the answer is correct, the segmentation list containing segmentation information separating the character features making up each character in the answer;

analytical recognition means responsive to the segmentation list for recognizing a plurality of characters individually and generating a second answer list for the string of characters in the image each answer having a confidence value that the answer is correct; and

means responsive to the first answer list and the second answer list for finding the best recognition answer for the string of characters.

2. In a computing system for processing information loaded as cursive text, a method for recognizing the cursive text to provide digital information corresponding to the cursive text, the method comprising:

5 loading into the computing system an image of an input phrase of cursive text;

identifying features of the input phrase, each feature representing at least a portion of a character in the input phrase;

10 matching features of the input phrase against features of a plurality of reference phrases and generating a holistic answer list containing as answers reference phrases that are most similar to the input phrase along with a confidence value, the confidence value for each answer being a measure of similarity between features of the input phrase and the features of the reference phase;

15 constructing a character segmented features list from the features of the input phrase and from the holistic answer list, the character segmented features list being a list of character features segmented into sets by characters in each answer from the holistic answer list;

translating the image of the input phrase into images of a character segmented input phrase based upon the character segmented features list;

20 matching character image variants of the input phrase against reference character images and generating an analytical answer list containing analytical answer phrases, each analytical answer having a confidence value as a measure of the similarity between a character image variant of the input phrase and the reference character images; and

25 finding the best recognition answer from the answers on both the holistic answer list and the analytic answer list.

3. In a handwritten character recognition system a method for recognizing an input word of handwritten text in an image provided to the recognition system, the method comprising:

5 identifying from the input word image an input string of metastrokes where each metastroke represents a portion of an alphanumeric character in the text;

10 storing the input string of metastrokes as character feature images; comparing as a whole the input string of metastrokes to a prototype string of metastrokes for reference words to generate a first recognition answer list having a plurality of possible answers;

15 creating a plurality of character segmentation hypothesis based on character segmented metastrokes for answers in the first recognition answer list;

translating each character segmentation hypothesis into character cutout images of the input word;

20 matching the character cutout images against variants of reference character images and generating a plurality of character variants for each character and each segmentation hypothesis;

interpreting the plurality of character variants of the input word for each segmentation hypothesis based on a vocabulary and generating a second recognition answer list having a plurality of possible answers; and

finding a best answer from the first and second answer lists as the recognition of the input word.